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EXAMINER

LOUIE, WAI SING

ART UNIT

PAPER NUMBER

2814

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

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DETAILED ACTION

The argument in the appeal brief is persuasive and the finality of previous rejection is withdrawn. A new ground of rejection is as below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (US 6,864,554).

With regard to claims 1-2, Lin et al. disclose an optoelectronic device with reflective surface (col. 6, line 60 et seq. and fig. 5), comprising:

- An LED 21 capable of emitting light (col. 7, line 31);
- A layer of phosphor 233 positioned to receive light and emitting visible light when illuminated with excitation light (col. 8, lines 10-21);
- Interference reflector means 46 for reflecting at least some light emitted by the LED 21 that has not passed through the layer of phosphor material 233, onto the layer of phosphor material 233 and transmitting at least some visible light emitted by the phosphor 233 (col. 8, lines 53-65 and fig. 5).

With regard to claims 3-4, in addition to the limitations disclosed in claims 1-2 above, Lin et al. disclose the layer of phosphor 233 has a major surface from which light is emitted toward an output end and the reflectors 46 and 232 reflect light emitted by the LED and substantially transmit light emitted by the phosphor material 233 (fig. 5).

With regard to claim 5, Lin et al. disclose the reflector 232 has a planar shape (fig. 4).

With regard to claims 6-7, Lin et al. disclose the reflector 232 has a non-planar shape is substantially an ellipsoid, where the LED 21 and the layer of phosphor material 233 are disposed at foci of the ellipsoid (fig. 6).

With regard to claim 8, Lin et al. disclose a first portion of the light emitted by the LED 21 is reflected by the reflector 232 onto a major surface of the layer of phosphor 233, and a second portion of the light emitted by the LED 21 impinges by reflector 46 on a second major surface of the layer of phosphor 233 opposed to the first major surface (fig. 5).

With regard to claim 9, Lin et al. disclose the reflector 232 has a shape of a surface of revolution (fig. 3 and 5).

With regard to claim 10, Lin et al. disclose the layer of phosphor surrounds the LED 21 (fig. 9).

With regard to claim 11, Lin et al. disclose the layer of phosphor material 233 is segmented into distinct color region (col. 8, lines 10-21).

With regard to claim 12, Lin et al. disclose the layer of phosphor material 233 is coplanar with the LED 21 (fig. 9).

With regard to claim 13, Lin et al. disclose the layer of phosphor material 233 is not coplanar with the LED 21 (fig. 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,864,554).

With regard to claims 14-15, Lin et al. do not disclose the layer of phosphor material 233 is a discontinuous layer of phosphor material and have a plurality of lines of phosphor material. However, weather the layer of phosphor material 233 is one solid piece or discontinuous pieces is considered as a change in shape of a device. A change in shape is generally recognized as being within the level of ordinary skill in the art. MPEP 2144.04.

Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,864,554) in view of Johnson et al. (US 6,414,442).

With regard to claim 16, Lin et al. do not disclose the phosphorus material comprises a plurality of dots of phosphor material. However, Johnson et al. discloses a layer of phosphor 102, where the phosphor material is arranged in a plurality of dots (Johnson col. 3, lines 48-51). Johnson et al. teach using the phosphor dots is less sensitive to misalignment and yield a more durable image device without high cost (Johnson col. 1, lines 51-60). Therefore, it would have

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been obvious to one of ordinary skill in the art to modify Lin's device with the teaching of Johnson et al. to use the phosphor dots instead of a layer of phosphor material in order to have less misalignment and yield a more durable image device.

With regard to claim 17, Lin et al. modified by Johnson et al. do not disclose the dots have an area of less than $10000 \mu\text{m}^2$. However, it would have been obvious to one of ordinary skill in the art to use any suitable sizes for the phosphor dots, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See *In re Alner*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

With regard to claims 18-19, Lin et al. modified by Johnson et al. disclose the plurality of dots of phosphor material that emits more than one color (blue, red, and green) when illuminated with the excitation light (Johnson col. 2, line 54).

With regard to claim 20, Lin et al. disclose the reflective layer 46 is epoxy resin coating (col. 8, lines 53-65). Although, it is not a two layers of thermoplastic polymer, however, the epoxy resin coating can function in the same manner, or be used in the same manner. See in *re Pearson*, *Ex parte Minks*, and *In re Swinehart*.

With regard to claim 21, Lin et al. modified by Johnson et al. disclose a three (blue, red, and green) color phosphor dots. The blue dots emit a first wavelength and the green dots emit a second wavelength different than the first wavelength (Johnson col. 2, lines 51-64).

Response to Arguments

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is 571-272-1709. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wai-Sing Louie/
Primary Examiner, Art Unit 2814

Wsl
February 27, 2008.